Algebra II
Final Exam Review

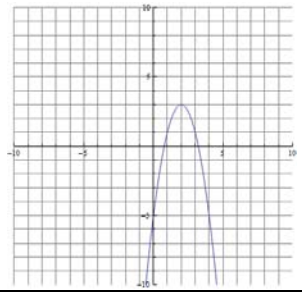
Solve the following equation by factoring

1. $17x - \frac{3}{2} = -56x^2$

Using the sum and product of roots determine the equation that has the solution set

2. $\left\{\frac{5}{8}, \frac{8}{7}\right\}$

What are the solutions of the quadratic equation graphed below?

3. 

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4. Graph $y = (x + \frac{1}{2})^2 + 4$

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5. Write the equation of a parabola that has a vertex at (-3,2), opens downward, and is narrower that the parent function by a scale factor of 4.

Graph the inequality

6. $y \le 4x^2 + 2x - 5$

Solve the inequality

7. $3x^2 \le -x + 2$

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8. Use synthetic substitution to find $f(-8)\ for\ f(x) = 3x^5 + 7x^4 - 3x^3 + 5x^2 + \frac{1}{4}x - \frac{2}{3}$

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9. One factor of $f(x) = x^3 - 3x^2 + 9x + 13$ is $2 + 3i$. Find all the zeros of the function.

Solve the equation

10. $r^{\frac{2}{3}} + 11r^{\frac{1}{3}} + 28 = 0$

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11. Find the inverse of the function $y = (x + 2)^2 - 3$

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12. Solve $x^4 - 50x^2 + 49 = 0$

13. If $f(x) = x^3 + 2x^2 + 3x = 4$ *and* $g(x) = x^3 + x + \frac{1}{2}$
Find $f[g(x)]$ *and* $g[f(x)]$

14. Calculate the mean, median, and mode for the following data: {45, 23, 67, 14, 24, 45}

15. Daisy Duke has 45 country CD's in her collection of music. She wants to select 6 CD's to listen to in her car. How many options does she have for selecting the six CD's?

16. You order a single-topping pizza for dinner. You have 10 choices for toppings, 3 choices for size, and 4 choices for crust. How many options do you have when you order?

17. Simon Towel has 50 CD's in his collection. He has 20 rap CD's, 12 country CD's and the remaining CD's are pop music. If he reaches into his CD cabinet and selects one CD, determine the probability that it is pop music.

18. Simplify the next 17 expressions

$6\sqrt{5} + 10\sqrt{5} - 3\sqrt{5}$

19. $\sqrt{60} + \sqrt{240}$

20. $5\sqrt{6} - \sqrt{36} + 5\sqrt{216}$

21. $(2\sqrt{3})(-5\sqrt{12})$

22. $\frac{5\sqrt{2}}{\sqrt{5}}$

23. $(4 - 2i) + (3 + 6i)$

24. $(2 - 7i) - (3 + i)$

25. $(6 - 5i)^2$

26. $\dfrac{3+4i}{2-3i}$

27. $\dfrac{6x+4}{x-1}+\dfrac{5}{x^2-1}$

28. $\dfrac{x-4}{x^2+2x-8}-\dfrac{x+2}{x^2-16}$

29. $\dfrac{3x^2-3}{2x^2+8x+6}\cdot\dfrac{4x+12}{5x^2-10x+5}$

30. $\dfrac{y^2-9}{y^2-3y}\div\dfrac{y^2+9y+18}{y}$

31. $\dfrac{3x^2+x-2}{x^2+7x+6}$

32. $3^{\frac{4}{3}}a^{\frac{8}{3}}$

33. $\sqrt[4]{32x^2}$

34. $\sqrt[3]{320}$

Solve:

35. $3x^2+11x+4=0$

36. $4x^2-9x=-7$

37. $9x^2-30x+25=0$

38. Solve the equation $\frac{12}{x}+\frac{3}{4}=\frac{3}{2}$

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39. Solve the equation $3x-8=4(2x+1)$

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40. $f(x)=x^2-4x$ find $f(x+h)$